

Recommended MPEG-2 Encoding Parameters

For *ReelTime*, *Visual Circuits*, *Adtec Digital*, and *MedeaWiz* decoding technology

- 1) Files should be program stream files of audio/video, video only or audio only, - not *transport streams*.
- 2) Use 4:2:0, not 4:2:2 encoding.
- 3) Recommended resolution is 704 x 576 in PAL (for ReelTime and Visual Circuits systems), 704 or 720 x 576 in PAL (for Adtec and MedeaWiz), 720 x 480 or 704 x 480 in NTSC.
- 4) We recommend closed GOP with an I-frame every 15 frames.
- 5) In MPEG-2, both fields should be encoded. This is the normal default.
- 6) The recommended audio bit rate is 384Kbps, sampling rate of 48KHz.
- 7) Recommended bit rates are: minimum 4Mbps for reasonably good quality or for scenes without much motion, 6Mbps for good quality with most content, 8Mbps for good quality with high-motion scenes, 10Mbps for demanding content, and up to 15Mbps for highest possible quality with demanding material.
 - **ReelTime servers (SCSI):** Recommend bit rates for standard servers are 6 – 10Mbps, but can playback as high as 15Mbps per channel, and 44Mbps across one 4-channel decoder card (or, averaging 11Mbps) at 704 x 576 PAL. For most applications 8Mbps is fine.
 - **Firefly servers – Standard (IDE):** Recommend bit rates for standard Firefly servers are 4 – 6Mbps per channel and should not exceed 24Mbps across all four channels (i.e. averaging 6Mbps per channel). It is an option to encode different channels at different bit rates as long as 24Mbps is not exceeded. For example, channel 1 & 2 may be encoded at 8Mbps, and channels 3 & 4 at 4Mbps.
 - **Adtec edge and Soloist2 players:** Any bit rate up to 12Mbps and resolution will play on the Adtec players. The bit rate should be as high as possible if large screen projectors are used. However 8Mbps is good for most applications.
 - **MedeaWiz DV66** and associated players: Dependent on the type of CompactFlash card used. For Ultra-II cards (>60-speed) encode at 4Mbps. For Extreme-III cards (>130-speed) and microdrives encode at 5-6Mbps.
- 8) The video and audio portions should be as close as possible to the same length if back-to-back playback or looping is to be done with the files. Ending the audio at a 0.5 second interval (at an I-frame) should ensure this.
- 9) It is recommended to include an encoded file of standard colour bars and audio test tones along with encoded media files for reference.
- 10) To playback stills or computer-based graphics, we recommend software encoders such as TMPGEnc (www.pegasys-inc.com) or DVMPEG (www.darvision.com).
- 11) To play stills & computer graphics on the same channel as full-motion video MPEG files, encode m2p files (with a dummy audio file) – m2v files will play, but cannot play on the same channel as MPEG files unless an audio track is also included. Video only images should be a minimum of 30 frames (1 second) for NTSC or 25 frames (1 second) for PAL. Stills with blank audio tracks should be encoded as large as possible with a minimum of 120 – 150 frames (4-5 seconds).